

WHAT IS CLAIMED IS:

1           1. A computer-implemented method of validating metadata in an object  
2 model stored in a database, comprising:

3                 identifying a first subject of validation, wherein the first subject is one of an  
4 object, an attribute, an association and a collection of objects;

5                 determining a context of metadata validation based on the first subject, the  
6 context including one of a) the first subject, and b) the first subject and one or more  
7 additional subjects;

8                 determining one or more validation rules for each subject in the context; and  
9 applying the determined validation rules to each subject in the context.

1           2. The method of claim 1, wherein each subject is a meta metadata object  
2 selected from the group consisting of a MetaAttribute, a MetaAssociation, a  
3 MetaAssociationEnd, a MetaClass and a MetaCollection.

1           3. The method of claim 1, wherein identifying includes receiving an  
2 indication from a user interface module, said indication identifying the first subject.

1           4. The method of claim 1, wherein identifying includes receiving an  
2 indication from a configuration management module, said indication identifying the first  
3 subject.

1           5. The method of claim 1, wherein identifying includes receiving an  
2 update indication identifying the first subject in response to a modification of the first subject.

1           6. The method of claim 1, wherein each of the one or more validation  
2 rules is one of a correctness type rule and a completeness type rule.

1           7. The method of claim 1, wherein the first subject is a root object for a  
2 collection of associated objects.

1           8. The method of claim 7, wherein the collection of objects is a  
2 deployable collection including all objects transitively associated with the root object.

1               9.       The method of claim 7, wherein the collection of objects is an  
2 aggregated collection including the root object and all of its strongly aggregated child objects  
3 recursively.

1               10.      The method of claim 1, wherein determining a context includes:  
2                   a) traversing all associations with a root object to identify target objects;  
3                   b) repeating a) for each target object, with each target object as the root object;  
4                   and  
5                   c) generating a list of all target objects, wherein said list of objects represents a  
6 transitive closure based on the root object.

1               11.      The method of claim 10, wherein determining a context is  
2 implemented using queries written in the Java language or a meta-language (METALANG)  
3 or both.

1               12.      The method of claim 10, wherein the list of objects forms the context  
2 for validation.

1               13.      The method of claim 10, wherein the first subject is the root object.

1               14.      The method of claim 1, wherein determining one or more validation  
2 rules includes identifying rules in rule files based on the subject type of each subject to be  
3 validated.

1               15.      The method of claim 14, wherein each rule file is a Java file.

1               16.      The method of claim 1, wherein each subject in the context is one of an  
2 instance of an object, an instance of an object containing an attribute, an instance of an object  
3 having an association and an instance of root object of a deployable unit of a collection of  
4 objects.

1               17.      A metadata validation system for validating an object model,  
2 comprising:  
3                   a database that stores the objects and metadata of the object model;  
4                   means for identifying a first subject of validation, wherein the first subject  
5 type is one of an object, an attribute, an association and a collection of objects;

6                   means for determining a context of metadata validation based on the first  
7   subject, the context including one of a) the first subject, and b) the first subject and one or  
8   more additional subjects;

9                   means for determining one or more validation rules for each subject in the  
10   context; and

11                  mean for applying the determined validation rules to each subject in the  
12   context.

1                 18.    The system of claim 17, wherein each subject is a meta metadata  
2   object selected from the group consisting of a MetaAttribute, a MetaAssociation, a  
3   MetaAssociationEnd, a MetaClass and a MetaCollection.

1                 19.    A method of validating metadata in an object model in a database, the  
2   method comprising:

3                   receiving user defined rules, each rule defining a validation rule on a meta  
4   metadata object, each rule being one of a completeness type rule and a correctness type rule;  
5                   storing the validation rules to the database;

6                   identifying a first subject of metadata validation, wherein the first subject has  
7   a subject type selected from the group consisting of an attribute, an association, an object and  
8   a collection of objects;

9                   determining a context of validation based on the first subject, wherein the  
10   context includes the first subject and none, one or more additional subjects;

11                  determining one or more validation rules for each subject in the context based  
12   on the subject type of each subject; and

13                  applying the validation rules to each of the determined subjects.

1                 20.    The method of claim 19, wherein each subject is a meta metadata  
2   object selected from the group consisting of a MetaAttribute, a MetaAssociation, a  
3   MetaAssociationEnd, a MetaClass and a MetaCollection.

1                 21.    The method of claim 19, wherein identifying a first subject includes  
2   receiving an indication from one of a user interface module and a configuration management  
3   module, the indication identifying an instance of an object in the database.

1                 22.    The method of claim 19, wherein the first subject is a root object for a  
2   collection of associated objects.

1               23.     The method of claim 22, wherein the collection of objects is one of a  
2 deployable collection including all objects transitively associated with the root object and an  
3 aggregated collection including the root object and its child objects, wherein the child objects  
4 are objects that are strongly aggregated to the root object recursively.

1               24.     The method of claim 22, wherein determining a context includes:  
2               a) traversing all associations with the root object to identify target objects;  
3               b) repeating a) for each target object, with each target object as the root object;  
4 and  
5               c) generating a list of all target objects, wherein said list of objects represents a  
6 transitive closure based on the root object.

1               25.     The method of claim 19, wherein determining one or more validation  
2 rules includes identifying rules in rule files based on the subject type of each subject to be  
3 validated.

1               26.     The method of claim 19, wherein storing the validation rules to the  
2 database includes:  
3               storing metadata describing the validation rules to the database; and  
4               storing the validation rules to one or more Java files.